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Region 10 Briefing Paper for the Office of the Regional Administrator

MEETING/EVENT TITLE: Temperature Water Quality Standards and Implementation Challenges in R10
MEETING DATE: January 10, 2018
LOCATION: ET Conference Room
PREPARED BY: OWW- Angela Chung, Rochelle Labiosa, and others
DATE: January 5, 2018
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EXTERNAL PARTICIPANTS: N/A

I. REQUESTING OFFICE

Water and Watersheds

II. TIMING

January/February. There are several upcoming HQ senior management briefings related to temperature water quality standards and TMDLs (e.g., Hells Canyon, Klamath River TMDL, and Columbia River TMDL).

III. PURPOSE & KEY MESSAGES

Because warming stream temperatures are a significant resource issue for Region 10's Clean Water Act programs and our State and Tribal partners, we want to provide you with background on Region 10's temperature water quality standards and regional guidance, implementation issues, and upcoming litigation milestones and decisions.

- Declining salmon runs, and the ESA listing of 28 salmon species, are a challenge unique to the Pacific Northwest; and warming temperatures are a significant contributor to salmon decline.
- Temperature impairments are caused by a variety of widespread human activities including removal of streamside vegetation; the construction of hydropower dams that provide low-cost energy; and warming air temperatures. Reaching agreement on the best way to reverse or minimize the impacts of these human activities is challenging, but is vital because salmon require cold water for survival.
- The Clean Water Act requires that States and EPA integrate salmon (and other aquatic life) protection into the regulatory process,

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IV. BACKGROUND/HISTORY

- Excessively warm stream temperatures have been identified as a leading threat to the health and survival of threatened and endangered salmonids in the Pacific Northwest. Exposure to warmer temperatures can reduce reproduction, growth, and/or survival for aquatic life.

  - For example, in 2015, excessive warming in the Columbia River and its tributaries in spring and early summer resulted in river temperatures that were too hot for sockeye salmon survival – causing a large pre-spawning mortality event.

- Nonpoint sources are generally the major anthropogenic contributors to warm river temperatures. Examples of non-point sources are forest and agricultural activities that have removed riparian vegetation/shade; development that has altered the river channel via diking/dredging; dams and reservoirs that trap heat; and water withdrawals that reduce stream flows. Industrial and municipal point sources are not a major contributor to warm river temperatures in the Pacific Northwest although some modest river warming and localized impacts to aquatic life near the outfalls can occur, particularly in effluent-dominated streams and where multiple major dischargers are clustered.
- Climate change has been estimated to have raised summer, fall, and winter stream temperatures across the Pacific Northwest (on average ~0.17C per decade since the 1980s for summer), although the effect is not uniform (stream-dependent). The trend is expected to continue and increase under the medium and higher emissions scenarios evaluated to date.
- As part of a response to litigation in the late 1990's, EPA formed a technical workgroup comprised of scientific experts from federal, tribal, and state agencies, academia, and other organizations in 2000. The technical workgroup developed several documents on the effects of temperature on salmonids.
- In 2003, EPA used the findings of the technical workgroup to identify protective temperature water quality standards for salmonids in the Pacific Northwest, and published the recommendations as *the EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards*.
- The Region 10 Guidance identifies protective temperature thresholds for different life stages of salmonids (see attachment). The Guidance also recommends the development of narrative and numeric criteria for protection of cold water and cold water "refugia," natural conditions criteria to be applied when stream temperatures are naturally warmer than criteria, and the inclusion of a "human use allowance" that when invoked caps anthropogenic sources' contributions to *de minimis* temperature increases of no more than 0.3C increase above the applicable criteria.

OREGON

- In late 2003, Oregon adopted the majority of the EPA-recommended temperature standards from the Region 10 Guidance. EPA approved Oregon's temperature standards in 2004.
- In 2005, Northwest Environmental Advocates (NWEA) filed a lawsuit challenging EPA's 2004 approval of Oregon's temperature standards.
- In 2012, the Judge upheld EPA's approval of the majority of Oregon's temperature standards. However, the Judge found that EPA had acted arbitrarily and capriciously in approving Oregon's narrative natural conditions provisions and remanded EPA's approval of the provisions.[1] The Judge found that EPA failed to provide a rational basis/scientific justification for approving the State's narrative natural conditions temperature provision and statewide narrative natural conditions provision. The Court held that Oregon's use of the narrative natural conditions provisions supplanted, rather than supplemented, the underlying numeric criteria by altering state standards without 303(c) review.
- In 2013, consistent with the Judge's order, the EPA disapproved Oregon's narrative natural conditions temperature provision, as well as Oregon's statewide natural conditions provision. In its disapproval letter,

[1] Text of Oregon's provision: Natural Conditions Criteria. Where the department determines that the natural thermal potential of all or a portion of a water body exceeds the biologically-based criteria in section (4) of this rule, the natural thermal potential temperatures supersede the biologically-based criteria, and are deemed to be the applicable temperature criteria for that water body.

the EPA identified potential options for Oregon to remedy the disapproval, such as developing numeric criteria based on the natural conditions, or developing a performance-based natural condition standard that establishes a methodology to derive natural condition-based criteria

- The Judge also remanded the Services' Biological Opinions on the EPA's approval of Oregon's temperature standards. The new Biological Opinions were finalized in 2015 and NMFS concluded that certain salmonids would be jeopardized by the 20C criteria for the Columbia and Lower Willamette Rivers and identified a reasonable and prudent alternative for EPA and Oregon to develop cold water refuge plans for these two rivers. FWS did not find jeopardy for threatened and endangered species under its jurisdiction.

- In 2012, NWEA filed a lawsuit challenging EPA's past approvals of the majority of Oregon's basin-wide temperature TMDLs written to the natural conditions provision for temperature. The 10 basin TMDLs are established for 686 unique impaired segments covering 7,213 river miles and approximately 39,800 square miles in Oregon. In addition, NWEA also challenged EPA for not making an approval/disapproval decision on the Upper Klamath River/Lost River temperature TMDL.
- In 2017, the Judge ruled that EPA's approvals of the TMDLs were arbitrary and capricious (retroactively) since they were written to an illegal standard.
- **Ex. 5 Deliberative Process (DP)**
- The 2017 ruling has had significant resource and prioritization impacts on R10 and State Water programs:
  - **Ex. 5 Deliberative Process (DP)**

IDAHO

- Idaho has EPA-approved temperature standards consistent with EPA's national guidance from the 1970's and 1990's, and has not adopted EPA's recommended temperature standards from the Region 10 Guidance. Idaho chose not to update their temperature standards because they believe their criteria are sufficiently protective and that the Region 10 recommended criteria would be too restrictive in many places. However, some of the Idaho's temperature standards are consistent with the Region 10 Guidance (e.g., natural conditions provision and 13C salmon spawning criteria).
- In 2012, Idaho submitted a site-specific criterion to change the salmonid spawning criterion from 13C to 14.5C as a 7-day average of the daily maxima for the stretch of the Snake River below the Hells Canyon Dam complex (waters shared with Oregon). The EPA has not yet taken action on the submittal but has completed a comprehensive technical review.
- In 2013, NWEA and the Idaho Conservation League filed a lawsuit challenging EPA's approval of Idaho's water quality standards including Idaho's natural conditions criterion for temperature.

- In 2013, Idaho Power Company submitted a Notice of Intent to Sue EPA for its failure to act on Idaho's 2012 site-specific criterion submittal for the Hells Canyon area. Idaho Power has not filed a complaint.

WASHINGTON

- Washington adopted the majority of the EPA-recommended temperature standards from the Region 10 Guidance and EPA approved Washington's temperature standards in 2008.
- In 2014, NWEA filed a lawsuit challenging EPA's 2008 approval of Washington's water quality standards including their natural conditions provisions.

MULTI-JURISDICTIONAL

- In 2017, Columbia Riverkeeper filed a lawsuit seeking to have EPA produce a temperature TMDL for the Columbia River mainstem and the Lower Snake River. They cited the urgency of temperature issues, including climate change impacts and the 2015 sockeye die-off, in the complaint.

V. KEY ISSUES

Oregon Temperature TMDL Litigation Including Upper Klamath TMDL

- As a result of the 2017 ruling, deliberations are currently underway about potential remedies. Key decisions by the court will be 1) whether the existing TMDLs stay in effect or will be vacated; and 2) how long and who will replace the 10-basin temperature TMDLs. EPA would like the existing TMDLs to stay in effect and for there to be 8-10 years for EPA and/or Oregon DEQ to replace them. This timeframe would allow EPA to complete quality TMDLs and address any remaining water quality standards issues to ensure that the standards are attained and maintained per Section 303(d) of the CWA.
- Since the invalidated TMDLs were written to Oregon's invalidated/disapproved narrative natural condition provision, a major challenge is how to either a) develop new TMDLs based on the numeric criteria or b) establish new standards/criteria that account for naturally warm river temperatures.
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- Likewise, establishing new standards/criteria that account for natural river temperatures is difficult in light of the 2012 court ruling that led to EPA's disapproval of Oregon's narrative natural condition provisions. Adopting customized numeric criteria for each watershed based on the estimated natural conditions is a challenging and time-consuming approach. Likewise developing a new narrative natural condition provision or a performance-based provision also presents legal and technical challenges.
- Oregon has expressed concern with establishing a new statewide natural conditions provision, due to the additional complexity required of a new standard, and the likely litigation that would result.
- EPA and Oregon are drafting declarations for a DOJ response brief on remedy to counter the plaintiff's arguments that the TMDLs are harmful and that the underlying TMDLs models are significantly flawed.
- In 2017, the Judge issued a 2-year timeframe for the upper Klamath TMDL to be completed (April 2019). The

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WA Temperature Litigation

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Idaho Natural Conditions Litigation

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Columbia & Lower Snake River Temperature

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- Because of EPA's ESA consultation with NOAA on Oregon's 20C numeric criteria, which found that the criteria could jeopardize salmon and steelhead, EPA is developing a Cold Water Refugia Plan for the Columbia River. The Plan compiles information on the locations, volumes, sufficiency, and restoration potential for cold water refuges to protect salmonids on their migration up the Columbia River. The project has been well-received thus far, and it will identify areas for protection and restoration in the final report, scheduled to be completed in November, 2018.
- A related project is an EPA-funded research study, the "Big Cold Small Cold Project" to develop sophisticated spatial-stream-network (SSN) models to compute tributary temperatures and provide an "easier" way to identify boundary conditions for TMDL modeling, cold-water strongholds, and potentially restored conditions for TMDL and WQS development. The models are also being used to provide data for the Coldwater Refugia plan projects on the Columbia and Willamette Rivers. EPA is conducting the research project as a resource for Pacific Northwest states and tribes to overcome some temperature-related implementation challenges.

Hells Canyon Temperature Site Specific Criterion for Spawning

- The Hells Canyon Dam Complex (owned by Idaho Power Company) is in the process of renewing its Federal Energy Regulatory Commission (FERC) license, which requires CWA 401 certifications from Oregon and Idaho. The FERC re-license process has been complex and ongoing since 2003, when IPC's old license expired. FERC has issued annual licenses since 2003, but a new 40-50 year license is expected. Complying with water temperature standards downstream of the Complex has been one of the many issues in the FERC license process.
- Idaho Power has submitted multiple 401 applications over the last decade. In 2017, Idaho and Oregon issued draft 401 certifications that included an upstream mitigation program to comply with Idaho and Oregon's current EPA-approved temperature criterion of 13C that protects salmonid spawning in the Hells Canyon reach downstream of the Complex. The draft 401 certifications are in the process of being revised to address issues unrelated to temperature, as discussed below.
- As noted above, on June 8, 2012, Idaho submitted a proposed revision to its current 13C temperature criterion to protect salmon spawning in the Snake River below the Hells Canyon Dam Complex to EPA for review and action. EPA has not yet taken action on the submitted package.

  - Idaho's submitted revision changes the applicable temperature criterion from 13C to 14.5C as a 7-day average of the daily maxima (7-dadm) temperatures from October 23 through Nov. 6.
- Since the Snake River below the Complex borders Idaho and Oregon, both state standards apply, and the most stringent applies if there is a difference between standards. Oregon's current temperature criterion to protect salmon spawning in this reach of the Snake River is 13C starting on October 23rd, the same as Idaho's current criteria.
- Notice of Intent to Sue was received on October 31, 2013 from Idaho Power Company claiming that EPA has a mandatory duty to act on Idaho's 2012 SSC. The 60-day notice expired December 31, 2013. Idaho Power has not filed a complaint.
- EPA provided comment to Idaho during its rulemaking process on the proposed 14.5C criteria revision, raising multiple concerns and recommending Idaho retain the 13C criterion.
- NOAA reviewed the 14.5C proposal and sent a letter to EPA in 2011, stating their position that 14.5C is acceptable because fall Chinook populations have increased in the Snake River. In Summer 2017, Idaho contacted NOAA and requested a new letter from NOAA reaffirming the 2011 letter. NOAA has not yet sent a reply letter, but EPA understands that NOAA will be providing a short letter to IDEQ stating that NOAA's views on this subject are contained in the final Snake River Fall Chinook Recovery Plan.
  - Note: In its 2015 Biological Opinion on Oregon's temperature standards, NOAA reviewed the Geist et al. 2006 study which serves as the main basis for the Idaho site-specific criterion of 14.5C and regarded the results with caution given methodological issues identified, and cited to the bulk of studies underpinning 13C as an appropriate criterion.
- Affected tribes (Nez Perce, Burns-Paiute, and others) have shown strong support for keeping the current (13C) criterion in place. The Columbia River Intertribal Fish Commission (CRITFC) technical staff independently reviewed Idaho's 14.5C proposal and asserted that the model erroneously combines data sets. CRITFC also reviewed the final submission and further added that the early spawning time period is not sufficiently protected.
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- In late 2014, Region 10 management discussed the submittal with IDEQ management and identified our likely action as disapproval with some remedy options. Given Idaho Power Company's applications for the 401 certifications to meet the existing temperature standard of 13C, EPA expressed a preference to either disapprove or not act on Idaho's submittal to see if the 401 certifications could be completed consistent with the existing temperature standard. Since 2015, EPA has not received a specific request from Idaho to restart work on the submittal, although there has been ongoing coordination related to the dam relicensing and 401 certifications.
- As noted above, in 2017, IDEQ and ODEQ released draft 401 certifications for public review, which used the 13C spawning criterion as the basis for establishing the thermal credits for the upstream mitigation program. EPA provided comment on the draft certifications conveying general support with some recommended improvements.
- Final issuance of the 401 certifications has been delayed due to disagreement between Idaho and Oregon on Oregon's requirement for passage of ESA listed salmon and steelhead over Hells Canyon Dam to access Oregon rivers.

- In December 2017, EPA received Governor Otter's letter regarding EPA's pending action on the site-specific criterion. EPA completed a draft response and forwarded it to HQ for the Administrator's signature. HQ plans to sign it by February 2018.

VI. REGULATORY SUMMARY (if appropriate)

N/A

VII. ADDITIONAL POLICY/TECHNICAL INFORMATION (if appropriate)

See SP site with additional background documents.

VIII. ANTICIPATED STAKEHOLDER REACTION/INVOLVEMENT

- Municipalities have struggled to comply with stringent temperature limits in NPDES permits. Key tools that are being explored by the states and EPA for compliance are compliance schedules, variances (316a for Boise), and water quality standards variances that must go through EPA approval and ESA consultation. Water quality trading/offsets are also under consideration, however, EPA plays only an advisory role in trading efforts.
- Industry is interested in any regulatory flexibility available, including the use of the "balanced and indigenous population" (BIP) alternative water quality target from the water quality standards in the 303(d) program. The EPA TMDL program believes that the use of BIP is complex in a TMDL context and likely to be litigated.
- Tribes are strongly opposed to weakening temperature protections for salmonids. However, tribes have indicated support for natural conditions provisions and authorized tribes generally have natural conditions provisions in their water quality standards.
- In general, Region 10 states have been wary of revising their temperature water quality standards given the anticipated workload and litigation challenges. States generally agree that meeting the temperature water quality standards can be a challenge, particularly for smaller municipal individual point sources, and may result in a disproportionate burden on point sources when non-point sources are often the primary contributor.
- In general, environmental groups want to preserve the temperature standards that are in place and, if revisions occur, make adjustments that result in additional protections to aquatic life. They also want to see more effective implementation of the existing temperature standards. In addition, they want to ensure that water quality standards revisions undergo an EPA CWA review and ESA consultation with the Services.

IX. ROLL-OUT / COMMUNICATIONS PLAN

Various

X. NEXT STEPS / UPCOMING DEADLINES

Short term

- January 24, 2018 Briefing for Deborah Nagle, Acting Director for the HQ Office of Science and Technology, on Hells Canyon Site-specific criterion submission for Idaho.
- January 26, 2018 Declarations and brief due for the Columbia River TMDL litigation.
- January 26, 2018 Declarations and brief due for the Oregon Temperature TMDLs remedy.
- January 30, 2018 Administrative Record filing due for the Washington Natural Conditions Provision (and other WQS) litigation.

- January 30, 2018 (estimated) Briefing for Upper Management and AA on Hells Canyon Site-specific criterion submission for Idaho and response to Governor Otter's letter.
- January 31, 2018 (unless extension granted) CMS response due for Governor Otter Letter.

Longer term

- November 2018, Cold Water Refugia Plan for the Columbia River Due.
- April 2019 – deadline for Klamath Temperature TMDL
- May 2019, Cold Water Refugia Plan for the Willamette River Due.
- December 2019 –estimated completion date for Columbia & Lower Snake River Temperature TMDL